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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/877,259	06/11/2001	Michael Schmidt	MERCK-2272	8004

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MILLEN, WHITE, ZELANO & BRANIGAN, P.C.
2200 CLARENDON BLVD.
SUITE 1400
ARLINGTON, VA 22201

EXAMINER

STOCKTON, LAURA LYNNE

ART UNIT	PAPER NUMBER
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1626

DATE MAILED: 12/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/877,259

Applicant(s)

SCHMIDT ET AL.

Examiner

Laura L. Stockton, Ph.D.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 July 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) 21-24 and 26-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 14-18 and 25 is/are rejected.
- 7) ☒ Claim(s) 12,13,19 and 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

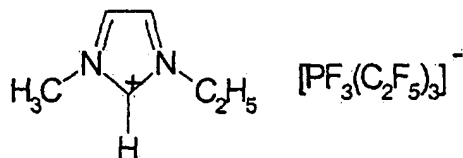
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DETAILED ACTION

Claims 1-28 are pending in the application.

Election/Restrictions

Applicants' election with traverse of Group V and the species of Example 1 on page 21 (reproduced below) in the reply filed on December 1, 2004 was acknowledged in the previous Office Action.

Example 1

The requirement was deemed proper and made FINAL in the previous Office Action.

Subject matter not embraced by elected Group V and claims 21-24 and 26-28 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected inventions. Applicant timely

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traversed the restriction (election) requirement in the reply filed on December 1, 2004.

On July 15, 2005, a Petition to the Commissioner under 37 CFR § 1.181 requesting withdrawal of the requirement for restriction of November 15, 2004 was filed.

On September 23, 2005, the Petition Decision granting the withdrawal of the restriction was mailed. The Decision states that the Examiner's restriction requirement of November 15, 2004 will be considered as an election of species requirement (see bottom of page 2 of the Decision). The Decision also states, "As applicants have elected a species and examination on the species has proceeded with the species currently being rejected over prior art, no further remedy need be considered at this time." See bottom of page 2 and top of page 3 of the Decision.

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Therefore, as per the Decision grant of September 23, 2005, subject matter not embraced by the elected species, the below identified expanded scope of examination, and claims 21-24 and 26-28 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected inventions.

Expanded scope of examination:

An ionic liquid wherein K⁺ is an **imidazolium ring**, an electrochemical cell comprising the ionic liquid wherein K⁺ is an **imidazolium ring**, a capacitor comprising the ionic liquid wherein K⁺ is an **imidazolium ring** and an electrolyte composition comprising the ionic liquid wherein K⁺ is an **imidazolium ring**.

Rejections made in the previous Office Action that do not appear below have been overcome by Applicants' amendment to the claims. Therefore, arguments pertaining to these rejections will not be addressed.

Response to Amendment

The Declaration under 37 CFR 1.132 filed June 4, 2004 is insufficient to overcome the rejection of claims 1-7, 12 and 13 based upon a 35 USC § 103 rejection over Koch et al. {U.S. Pat. 5,827,602} as set forth in the last Office action because in paragraphs numbered 2 and 3 on page 2 of the Declaration, additional pages are mentioned but were not provided with the Declaration, which had a total of 3 pages (including the signature page). Applicants did not compare any of the exemplified compounds in the instant specification (e.g., Example 1 or Example 2 or Example 3 on page 21 of the instant specification). Applicants have not identified, or compared, the closest prior art example. Applicant relying upon comparative showing to rebut *prima facie* case must compare his claimed invention with the closest prior art. *In re Holladay*, 199 USPQ 516, 1978.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-11, 14-18 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koch et al. {U.S. Pat. 5,827,602} and in view of Heider et al. {U.S. Pat. 6,423,454}, Heider et al. {U.S. Pat. 6,548,212} and Hilarius et al. {US 2002/0015883}.

Determination of the scope and content of the prior art (MPEP §2141.01)

Applicants claim an ionic liquid of formula (I) wherein K^+ is a imidazolium ring and A^- is $[PF_x(C_yF_{2y+1-z}H_z)_{6-x}]^-$. Koch et al. (columns 1 and 2; Table 3 in columns 9-10; and especially Example V in column 8) teach ionic liquids that are structurally similar to

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the instant claimed liquids. Koch et al. teach an ionic liquid wherein the cation is an imidazolium (column 2, lines 40-45) and the anion is selected from $(\text{CF}_3)_2\text{PF}_4^-$, $(\text{CF}_3)_3\text{PF}_3^-$, $(\text{CF}_3)_4\text{PF}_2^-$, $(\text{CF}_3)_5\text{PF}^-$ and $(\text{CF}_3)_6\text{P}^-$ (column 3, lines 52-53).

*Ascertainment of the difference between the prior art and the claims
(MPEP §2141.02)*

The difference between the teachings in Koch et al. and the instant claimed invention is that the instant claimed invention is generically described in Koch et al.

*Finding of prima facie obviousness--rational and motivation (MPEP
§2142-2413)*

The indiscriminate selection of "some" among "many" is *prima facie* obvious, In re Lemin, 141 USPQ 814 (1964). The motivation to make the claimed compounds derives from the expectation that structurally similar compounds would possess similar activity (e.g., useful in batteries). Further, Heider et al. '454 (column 3,

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lines 52-59), Heider et al. '212 (column 1, lines 21-24; column 2, lines 13-27; and column 3, lines 2-37) and Hilarius et al. (page 1, paragraph [0009]; page 2, paragraphs [0034-0036]) each teach the benefit of having a conductive salt (e.g., LiPF_6 or LiBF_4) and an isocyanate in electrolyte compositions. Also see in the instant specification on page 4.

One skilled in the art would thus be motivated to prepare products embraced by Koch et al., and especially in view of the teachings in Heider et al. '454, Heider et al. '212 and Hilarius et al., to arrive at the instant claimed products with the expectation of obtaining additional beneficial products which would be useful in batteries. The instant claimed invention would have been suggested and therefore, obvious to one skilled in the art. A strong case of *prima facie* obviousness has been established.

Response to Arguments

Applicants' arguments filed July 15, 2005 have been fully considered. Applicants argue that Koch et al. do not have a specific teaching of an anion selected from $(\text{CF}_3)_2\text{PF}_4^-$, $(\text{CF}_3)_3\text{PF}_3^-$, $(\text{CF}_3)_5\text{PF}^-$ and $(\text{CF}_3)_6\text{P}^-$. In response, column 3, lines 52-53, Koch et al. do teach an anion selected from $(\text{CF}_3)_2\text{PF}_4^-$, $(\text{CF}_3)_3\text{PF}_3^-$, $(\text{CF}_3)_4\text{PF}_2^-$, $(\text{CF}_3)_5\text{PF}^-$ and $(\text{CF}_3)_6\text{P}^-$. Said anions taught in Koch et al. is embraced by the definition of the instant A^- variable.

Applicants argue that it is by now well settled law that the mere disclosure of a broad chemical genus, in and of itself, does not render obvious every species encompassed therein but instead, there must be some motivation that would lead one to select the particular species. Applicants argue that in the instant case, when one compares the specific imidazolium compounds disclosed by Koch et al. in Examples I, III, IV and V, these compounds of Koch et al. do not suggest the

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compounds claimed by Applicants. Applicants further argue that the rejection of record presents no rationale as to how one of ordinary skill in the art would arrive at an embodiment in accordance with Applicants' claimed invention. Applicants additionally argue that only anions are listed in column 3, lines 52-53 and in Table 3 (columns 9-10) and that Koch et al. do not lead one of ordinary skill in the art to the cations described in Applicants' claims 4 and 5. Applicants argue that the secondary references fail to provide any motivation to select a compound of Applicants' claimed invention from the generic disclosure of Koch et al.

All of Applicants' arguments have been considered but have not been found persuasive. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

1. Determining the scope and contents of the prior art.

Applicants claim an ionic liquid of formula (I)

wherein K^+ is a imidazolium ring and A^- is $[PF_x(C_yF_{2y+1-z}H_z)_{6-x}]^-$. Koch et al. (columns 1 and 2; Table 3 in columns 9-10; and especially Example V in column 8) teach ionic liquids that are structurally similar to the instant claimed liquids. Koch et al. teach an ionic liquid wherein the cation is an imidazolium (column 2, lines 40-45) and the anion is selected from $(CF_3)_2PF_4^-$, $(CF_3)_3PF_3^-$, $(CF_3)_4PF_2^-$, $(CF_3)_5PF^-$ and $(CF_3)_6P^-$ (column 3, lines 52-53).

2. Ascertaining the differences between the prior art and the claims at issue.

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The difference between the teachings in Koch et al. and the instant claimed invention is that the instant claimed invention is generically described in Koch et al.

3. Resolving the level of ordinary skill in the pertinent art.

The indiscriminate selection of "some" among "many" is *prima facie* obvious, In re Lemin, 141 USPQ 814 (1964). By picking and choosing, one skilled in the art arrives at the instant claimed invention. The motivation to make the claimed compounds derives from the expectation that structurally similar compounds would possess similar activity (e.g., useful in batteries).

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

One skilled in the art would thus be motivated to prepare products embraced by Koch et al., and especially in view of the teachings in Heider et al. '454, Heider et al. '212 and Hilarius et al., to arrive at the instant claimed products with the expectation of

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obtaining additional beneficial products which would be useful in batteries. Therefore, each of the factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) have been met. As stated in the previous Office Action, it is well established that consideration of a reference is not limited to the preferred embodiments or working examples, but extends to the entire disclosure for what it fairly teaches, when viewed in light of the admitted knowledge in the art, to person of ordinary skill in the art. In re Boe, 148 USPQ 507, 510 (CCPA 1966). It would appear that Applicants' are arguing that if a rejection under 35 USC § 102 can not be made, than a rejection under 35 USC § 103 should not be made. However, this is not one of the factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are

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applied for establishing a background for determining obviousness under 35 U.S.C. 103(a).

Applicants argue that Koch et al. do not lead one of ordinary skill in the art to the cations described in Applicants' claims 4 and 5. In response, Koch et al. teach that the imidazolium can be substituted with a group such as a phenyl group. See the definition of R₁-R₅ at the bottom of column 2 in Koch et al.

Additionally, the test for combining references is not what individual references themselves suggest but rather what the combination of disclosures taken as a whole would suggest to one of ordinary skill in the art. In re McLaughlin, 170 USPQ 209 (1971). While a deficiency in a reference may overcome a rejection under 35 U.S.C. § 103, a reference is not overcome by pointing out that a reference lacks a teaching for which other references are relied. In re Lyons, 150 U.S.P.Q. 741, 746 (C.C.P.A. 1966). For all the reasons

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given above, the instant claimed invention is found to have been obvious over the cited prior art.

Allowable Subject Matter

The elected species of Example 1, on page 21 of the instant specification, is allowable over the art of record.

Claims 12, 13, 19 and 20 are objected to as being: (1) dependent upon a rejected base claim; and (2) containing nonelected subject matter, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action.

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Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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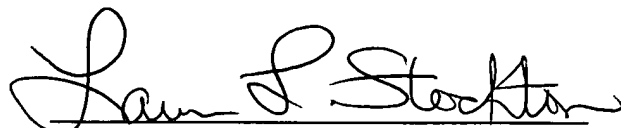
This application contains subject matter and claims 21-24 and 26-28 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected inventions. A complete reply, if any, to the final rejection must include cancellation of nonelected claims (37 CFR 1.144) See MPEP § 821.01.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura L. Stockton whose telephone number is (571) 272-0710. The examiner can normally be reached on Monday-Friday from 6:15 am to 2:45 pm. If the examiner is out of the Office, the examiner's supervisor, Joseph McKane, can be reached on (571) 272-0699.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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The Official fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

A handwritten signature in black ink, reading "Laura L. Stockton". The signature is fluid and cursive, with the first name "Laura" and last name "Stockton" clearly distinguishable.

Laura L. Stockton, Ph.D.

Patent Examiner

Art Unit 1626, Group 1620

Technology Center 1600

December 27, 2005